HANDBOOK OF PHONOLOGICAL DATA
FROM A SAMPLE OF THE WORLD'S LANGUAGES

A Report of the Stanford Phonology Archive

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165 Nama	165 Nama	165 Nama
165 01 p[01 02] [p-unreleased][60] (free)	[eng][67] (allo,transitional)	52 iota-nasalized
165 02 t[01 03]	35 l[09] (loan)	53 e
165 15 c[04 61] (loan,allo) */k/ [yod][62] (free)	36 r-trill [r-flap][68] (free) [l-flap][69] (free)	54 a-front[15]
165 16 k[01 03] *[c]	37 glottal stop[10]	55 a-front-nasalized[16]
165 18 t/s-aspirated[05] [t/s-hacek-aspirated][63] (allo,free)	38 h [h-nasalized][70] [h-voice][71]	57 u
165 23 k/x-aspirated[06] [k-aspirated][64] (free)	39 t-laminal-click[11]	58 u-nasalized
165 24 f (loan)	40 c-click[12]	59 o [o-nasalized][74] [upsilon][72 73] */i/
165 26 s[07] [s-hacek][65]	41 t/s-click[13]	
165 27 x[08]	42 t/l-fricative-click[14]	81 higher-mid-rising [high-rising][75]
165 29 m [m-syllabic][66]		82 high-falling
165 30 n [n-syllabic][66]	51 i *[upsilon] [schwa][72] (allo,neutral) [iota][72] (allo,neutral)	83 mid-rising
		84 mid-falling
		85 lower-mid
		86 low-rising

165 $a Nama $A Hottentot $d Khoisan $e South Africa $g Merritt Ruhlen $g John Crothers (review)

165 $a Beach, D. M. $b 1938 $c The Phonetics of the Hottentot Language $g Cambridge: Heffer

165 $a **CLICKS** $A Each click articulation occurs with any of five types of transition to the following vowel: (1) [k], (2) [k/x-aspirated] or [k-aspirated], (3) [glottal stop] (actually silent release of the velar click closure followed by [glottal stop]), (4) [h] (again silent velar release followed by [h]), (5) [eng]. Since the velar click closure must be released somehow, the [k] transition can be considered an unmarked type, as done by Beach. The productivity of the combinations and the separateness of the click and velar (or glottal) articulations make analysis as clusters attractive. The unmarked type could be considered either as cluster of click plus /k/, or as simple click. [JHC]

165 $a **LONG VOWELS (NON-DISTINCTIVE)** $A Vowel length follows these general rules: [schwa] and toneless vowels tend to be shorter, as do vowels before stem final nasal, vowels in compounds, and vowels in disyllables. Interjections (including imperatives) also tend to be short. Stem final vowels tend to be longer, especially sentence finally.

165 $a **MORPHEME STRUCTURE** $A (C)(C)V(CV)(C)

165 $a **NASALIZED VOWELS (NON-DISTINCTIVE)** $A Vowels are nasalized to a greater or lesser degree after a nasal click (i.e. cluster of click plus [eng]). (p.87)

165 $a **STRESS** $A All syllables are fairly equally stressed; there is slight weakening with toneless syllables and [schwa], and slight strengthening phrase finally. (p.122)

165 $a **SYLLABLE** $A (C)(C)V(C) $A initial CC: click + velar or glottal C (could also be treated as units) $A final C: /p, t/s, s/ (occur after syllabic nasals as well as vowels) (p.24ff)

165 $a **TONE** $A domain of tone: morpheme $A Both monosyllabic and disyllabic stems show the same six patterns of tonal contrast, so there seems no plausible basis for reducing the contour tones to

sequences of level tones. The two rising tones of Nama are found with roots which have initial voiced stops /d, g/ in Korana. Most Nama speakers have lost the voicing distinction, making the rising tones phonemic. The correspondences (N = Nama, K = Korana): N/higher-mid-rising/ = K/higher-mid-rising/, N/high-falling/ = K/high/, N/mid-falling/ and /low-rising/ = K/lower-mid/, N/lower-mid/ and /mid-rising/ = K/mid-falling/. (p.130ff, 247ff)

165 01 $A "The Nama /p, t, k/ are even more weakly aspirated than the French unvoiced plosives." (p.54)

165 02 $A "Intervocalically.../p/ is sometimes voiced slightly." (p.55) In the Korana dialect it becomes [beta].

165 03 $A /t, k/ for a few speakers have slight voicing when they occur initially in stems with "mid-rising" or "low-rising" tone. In the Korana dialect /t, d/ and /k, g/ are separate phonemes. (p.56, 58)

165 04 $A In the articulation of [c] the "front of the tongue [is] against the hard palate and alveoli.... As is the case with palatal plosives in all languages in which they occur, there is a parasitic semi-vowel between the palatal [c] and the following vowel." (p.57) It "exists only in foreign loan words" as an independent phoneme. (p.61)

165 05 $A For /t/s-aspirated/ "the tip of the tongue touches the very front teeth during the occlusion.... But the blade of the tongue also touches the alveoli." It is "strongly aspirated." (p.65)

165 06 $A "/k/x-aspirated/ occurs only initially before vowels.... In real Hottentot roots it never occurs before the front vowels." It is strongly aspirated. (p.66)

165 07 $A /s/ is "pronounced by placing the blade of the tongue very close to the alveoli.... The teeth are close together and the sides of the tongue touch the upper teeth." (p.61)

165 08 $A For /x/ the "normal articulation seems to be slightly further back than the most common German [x] (as in 'ach')." (p.62) It "occurs only initially.... It never occurs before the front vowels /i, e/." (p.63)

165 09 $A /l/ is "post-alveolar." "The dorsum of the tongue is somewhat hollowed and spread, so that the dorsal resonance...is somewhat similar to the American...pronunciation of the letter 'r' ir 'for.'" (p.71-72)

165 10 $A "In Hottentot, a glottal plosive is generally used before all strong roots [= stems] which begin with a vowel...." It occurs before some vowel initial suffixes, but not others. It cannot occur between vowels in a root, but does occur stem initially as part of a click cluster. (p.59f, p.84f)

165 11 $A /t-laminal-click/ "has been wrongly termed 'palatal' by most writers on Hottentot.... I use the term denti-alveolar to describe the place of influx because the tip of the tongue touches the upper front teeth at the same time as the blade touches the alveoli.... The principal difference between /t/s-click/ and /t-laminal-click/ is not in the place but rather in the manner of influx. /t/s-click/ is affricative, whereas /t-laminal-click/ is plosive." (p.77)

165 12 $A For /c-click/ "the place of influx is alveolar (generally 'post-alveolar' or 'palato-alveolar')." "The tip of tongue is placed against the alveoli, usually quite far back, though the exact position varies even in the pronunciation of a single individual. The side-edges of the tongue touch the gums and the teeth." "Although there is very little difference in tongue position between /c-click/ and /t/l-fricative-click/, there are two other very great differences. In the first place /c-click/ is 'fronted,' whereas /t/l-fricative-click/ is lateral. And in the second place /c-click/ is...'instantaneous' whereas /t/l-fricative-click/ is affricative." (p.80)

165 13 $A In /t/s-click/ "the tip of the tongue is placed against the inside of the upper front teeth, the sides of the tongue are also made to touch the teeth and gums, and the back of the tongue touches the velum.... Dental implosion ensues, accompanied by considerable friction." (p.75)

165 14 $A In /t/l-fricative-click/ "the tip ot the tongue is placed against the alveoli, the side-edges of the tongue touch the teeth and gums, and the back of the tongue touches the velum.... Influx is made at one or both sides of the tongue and is affricative, i.e. it is accompanied by friction.... The influx is generally made over a considerable length of the side-edge (or edges) of the tongue and not at a single point. Sometimes the influx takes place 'all along the line' from quite far back all the way to the tip of the tongue.... The influx is usually unilateral." (p.79)

165 15 $A "There is a tendency to pronounce /a-front/ slightly closer when it occurs before final /m/, /i/, or /u/ in the same root.... But in general /a-front/ is pronounced with fully open tongue articulation." (p.39)

165 16 $A "When followed in the same root by /i-nasalized/ or /u-nasalized/, there is a tendency to make.../a-front-nasalized/ slightly closer." (p.48)

165 60 $A Word finally "/p/...is pronounced either with weak explosion or (more commonly) as a mere stop or occlusion, without an explosion at all." (p.54)

165 61 $A /k/ becomes [c] before /e/, the only front vowel it occurs before in Nama roots. (p.57)

165 62 $A "The weak unvoiced palatal plosive is perhaps the most common pronunciation [of [c]], though Hottentot speakers who know a good deal of German usually use [yod]." (p.61)

165 63 $A "A fairly widespread variant pronunciation of /t/s-aspirated/ is a more retracted variety.... This [t/s-hacek]-like /t/s-aspirated/ is very common amongst old people...particularly when it is final in a syllable." (p.65)

165 64 $A "A variant pronunciation of /k/x-aspirated/ used by some speakers in [stems] and by nearly all speakers at times in [affixes] is a strong plosive [k-aspirated]." (p.66)

165 65 $A "Many Hottentot speakers...'lisp' their /s/ towards [s-hacek].... Their /s/ is pronounced slightly further back on the alveoli than normal and the blade of the tongue is slightly further away from the alveoli. This [s-hacek]-like /s/ is especially common amongst old people." (p.62)

165 66 $A The nasals /m, n/ become syllabic morpheme finally. (p.68f)

165 67 $A [eng] occurs in cluster with each of the click articulations, where it can be considered as phonemic click plus /n/. [eng] is also found as an optional transitional sound before clicks plus /glottal stop/ or /h/ ("glottal plosive" and "glottal fricative efflux" in Beach's terms). (p.85ff)

165 68 $A For /r-trill/ the "number of taps made...may vary (from seven or eight downwards). In connected speech the number of taps is probably never more than four, and very often it is reduced to one." (p.70)

165 69 $A In the flap variant of /r-trill/ "quite a number" of speakers have a very wide opening between the side of the tongue and the roof of the mouth, resulting in "a very [l] like quality." (p.71)

165 70 $A /h/ is nasalized before a nasal vowel. (p.63)

165 71 $A "In rapid speech the /h/ is often voiced when it is both preceded and followed by a vowel in the same breath-group." (p.63)

165 72 $A While Beach treats [schwa], with its variants [iota], [upsilon], as a phoneme of very limited occurrence, it seems that it could be assigned to the /i/ phoneme. [schwa] is found in the first syllable of a few disyllabic stems and in two suffixes and one stem before final nasals. [i] never occurs in these environments (nor does /e/). [iota] occurs before a front vowel in the next syllable or before /n/, [upsilon] occurs before /u/ in the next syllable and before /m/. (p.43f, p.36) [JHC]

165 73 $A /o/ becomes [upsilon] "before a final /m/ in the same root and in the root-ending 'omi.'" (p.40)

165 74 $A /o/ is nasalized before /a-front-nasalized/. Beach regards this [o-nasalized] as a separate phoneme, though it does not occur independently. (p.48)

165 75 $A /higher-mid-rising/ becomes [high-rising] (1) when the second, or the only, vowel of a stem is /i, u/ or a nasal vowel, (2) when the first vowel is followed by a nasal consonant. (p.132)